

CLAIMS

What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. A spatial light modulator, comprising:
a first pixel array; and
a second pixel array disposed along a same optical path as the first pixel array;
wherein the first pixel array is adapted to adjust colors of light transmitted through pixels in the first pixel array to generate an image; and
wherein the second pixel array is adapted to filter the image transmitted from the first pixel array to adjust an output luminescence of the image.
2. The spatial light modulator according to Claim 1, wherein the first pixel array comprises a plurality of colored pixels.
3. The spatial light modulator according to Claim 2, wherein each of the colored pixels includes a red portion, green portion and blue portion.
4. The spatial light modulator according to Claim 3, wherein each of the colored pixels is adapted to adjust the red portion, green portion and blue portion to create a desired color.

5. The spatial light modulator according to Claim 1,
wherein:

the first pixel array is positioned adjacent to the
second pixel array;

each of a plurality of first pixels of the first pixel array
are aligned to each of a plurality of second pixels of the second
pixel array; and

light from each of the first pixels is filtered by a
respective one of the second pixels.

6. The spatial light modulator according to Claim 5,
wherein the first pixel array is positioned along the optical path
before the second pixel array with respect to an illumination source.

7. The spatial light modulator according to Claim 1,
wherein the second pixel array comprises a plurality of
monochromatic pixels.

8. A display device comprising:
an illumination source;
a first pixel array;
a second pixel array disposed along a same optical
path as the first pixel array;
a display; and
a control device that communicates with at least the
first pixel array and the second pixel array;
wherein the first pixel array and the second pixel array
are disposed along the optical path between the illumination source
and the display;

wherein the control device is adapted to communicate with the first pixel array to adjust colors of light transmitted through pixels in the first pixel array to generate an image; and

wherein the control device is adapted to communicate with the second pixel array filters the image transmitted from the first pixel array to adjust an output luminescence of the image.

9. The display device according to Claim 8, wherein the first pixel array comprises a plurality of colored pixels.

10. The display device according to Claim 9, wherein each of the colored pixels includes a red portion, green portion and blue portion.

11. The display device according to Claim 10, wherein the processor is adapted to communicate with each of the colored pixels to adjust the red portion, green portion and blue portion to create a desired color.

12. The display device according to Claim 8, wherein:
the first pixel array is positioned adjacent to the second pixel array;

each of a plurality of first pixels of the first pixel array are aligned to each of a plurality of second pixels of the second pixel array; and

light from each of the first pixels is filtered by a respective one of the second pixels.

13. The display device according to Claim 12, wherein the first pixel array is positioned along the optical path before the second pixel array with respect to an illumination source.

14. The display device according to Claim 8, wherein the second pixel array comprises a plurality of monochromatic pixels.

15. The display device according to claim 8, wherein the display is a screen of a computer.

16. The display device according to claim 8, wherein a display is a projector screen.

17. A method for controlling luminescence of an image comprising:
providing a first pixel array and a second pixel array;
positioning the second pixel array along an optical path with the first pixel array;
controlling the first pixel array to generate an image on the second pixel array; and
controlling the second pixel array to adjust luminescence of the image and project the image on a display.

18. The method according to claim 17, wherein the first pixel array comprises a plurality of colored pixels.

19. The method according to claim 18, wherein the second pixel array comprises a plurality of monochromatic pixels.

20. The method according to Claim 18, wherein the second pixel array expands a dynamic range of a display device containing the first pixel array, second pixel array and display.

21. A display device comprising:
a first pixel array means for generating an image;

a second pixel array means for adjusting an illumination of the image;
wherein a dynamic range of the display is enhanced.

22. A method for controlling luminance of an image comprising:
providing a luminance pixel array;
positioning the luminance pixel array along an optical path with an image pixel array;
controlling the luminance pixel array to adjust luminescence of an image projected by the image pixel array on a display.

23. The method according to claim 22, wherein the luminance pixel array comprises a plurality of monochromatic pixels.

24. The method according to Claim 23, wherein the luminance pixel array expands a dynamic range of the image pixel array.